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AUTHOR Schave, Barbara; And Others
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ABSTRACT

Four null hypotheses were formulated to test for relationships between pairs of identical and fraternal twins and their parents on measures of locus of control. Two additional hypotheses were formulated to test for differences between mean scores of identical and fraternal twins and scores of their parents on these same constructs. Twenty pairs of 6-year-old identical twins and 20 pairs of same-age fraternal twins were administered the Stanford Pre-School Internality-Externality Scale (SPIES), while their parents were administered the Reid-Ware Internality-Externality Scale (RWIES). Pearson r correlations were calculated to test for similarities within the twin pairs, between the identical and fraternal twins, and between parents and twins. Group differences between pairs were determined by the t test. Results indicated significant relationships for fraternal twins on SPIES, as well as relationships between mothers' scores on RWIES and identical twins' scores on SPIES. No interpair relationships for fraternal twins were found. Based on these results, it was concluded that identical twins have different conceptions of their ability to control their world and that fraternal twins perceive their ability to control their world similarly. Further, a differential relationship was found to exist between the mother's internality orientation and the orientations of dominant (external) and nondominant (internal) twins. (MP)

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SOCIAL DEVELOPMENT IN SIX YEAR-OLD IDENTICAL AND FRATERNALTWINS

Barbara Schave, USC

Margaret Smart, USC

Kathleen Wulf, USC

Frank Fox, USC

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Abstract

The problem of the study was to examine socialization aspects of locus of control in six year-old identical and fraternal twins and their mothers and fathers. Four null hypotheses were formulated to test relationships: 1) within pairs of 6 year-old identical and fraternal twins; and 2) between both parents and sets of identical and fraternal twins. Two hypotheses were formulated to test for differences between sets of twins and their parents.

In home interviews, 20 pairs of identical twins and 20 pairs of fraternal twins were administered the Stanford Pre-School Internality-Externality Scale (SPIES). For statistical analysis, twin pairs were divided into dominant twins and non dominant twins as defined by parents. Parents were administered Reid-Ware Internality Externality Scale (RWIE). Pearson r correlations were used to determine similarities within the pairs of twins and between the pairs and their parents. Group differences between pairs were determined by the t test. Level of significance was $p < .05$.

The findings were: 1) no intrapair relationshipf for identical twins on SPIES; 2) significant relationship for fraternal twins on SPIES; 3) significant relationship between mothers's RWIE and dominant identical twin on SPIES.

It was concluded that identical twins have different conceptions of their ability to control their world and that fraternal twins perceive their ability to control their world similarly. Further, the mothers's internality orientation relates differently to the dominant twins (external) than to the non dominant twins (internal).

SOCIAL DEVELOPMENT IN SIX YEAR OLD IDENTICAL AND FRATERNAL TWINS

Twin studies have been used by researchers and clinicians to gain a better understanding of the growth processes in child development. The emerging themes of the twin literature include: the relative importance of the genetic endowment as compared to environmental interactions, the psychodynamics of the parent child interaction, and the nature and effect of the inter-twin relationship.

Research findings on twin development are contradictory. A strong body of research from the field of educational psychology, behavioral genetics and child development indicates a striking similarity between identical twins on measures on intelligence, cognitive development, language acquisition, introversion/ extraversion, and aspects of temperament (Floderus Myred, Pederson, & Rasmuson, 1980; Jensen, 1969; Koch, 1966; Lytton, 1977; Mittler, 1971; Newman, Freeman & Holzinger,1937; & Wilson, 1978). Juxtaposed with these research findings are psychoanalytic case studies which indicate that personality differences between twins are related to parenting, the closeness of the twin relationship, and the simultaneous development of the self or ego in twins (Allen, Greenspan & Pollin,

1976; Burlingham, 1952; Dibble & Cohen, 1981; Farber, 1981; Hift, 1981; Leonard, 1961; Tabor, 1961; & Zazzo, 1960).

Research on parenting twins indicates that there is reciprocity in the parent-child interaction (Lytton, 1980). However, parenting research is contradictory. Behavioral psychologists contend that parents respond to rather than create differences between their twins (Lytton, Conway & Sauve, 1977). Psychoanalysts contend that the mother's need to relate to and to identify with her twins is what creates differences between identical twins (Burlingham, 1952; Cohen, Allen, Pollin, Werner & Dibble, 1972; Cohen, Dibble & Grave, 1977; Hift, 1981).

Until recently, these findings indicating similarities and differences between twins remained in opposition to one another. However, Farber's teleological argument (1981) based on 101 case studies of twins reared apart indicates a bridge between these divergent findings. Farber speculates that although identical twins are genetic copies of one another, it is the intrapsychic environment which creates differences; the need of each individual to develop a unique and separate identity.

The integration of the conflicts of previous research with Farber's argument that identity formation is the key to the understanding of twin development was the theoretical basis of this study. The purpose of this study was to examine aspects of identity that had not been considered by previous researchers which might indicate similarities or differences between identical and fraternal twins. As social aspects of identity had not been investigated by researchers the development locus of control became the focus of this study. Six year-old twins were chosen as the subjects because they

are old enough to be tested with some reliability, yet still primarily influenced by the family.

Locus of control, which is critical to the development of social identity, hsa its antecedents in the quality and quantity of parenting in early childhood (Robinson & Shaver, 1973) as well as the interactions the child has with significant others (Lefcourt, 1976; Phares, 1978; & Piaget, 1932). In order to ascertain the significance of parenting on these constructs, parental measures were obtained along with measures on the six year-old identical and fraternal twins.

Four null hypotheses were formulated to test for relationships between the pairs of identical and fraternal twins and their parents on measures of locus of control. Two additional hypotheses were formulated to test for differences between mean scores of identical and fraternal twins and their parents on these same constructs.

Method

Subjects The sample consisted of volunteer parents and children. Twenty pairs of 6 year-old identical twins and their parents and 20 pairs of 6 year-old fraternal twins and their parents who were affiliated with the Southern California Mother of Twins Clubs were the subjects of this study.

Procedures In home interviews the researcher read the Stanford Pre-School Internality-Externality Scale (SPIES) to each of the six year-old twins. At this time parents were asked to complete the Reid Ware Internality-Externality Scale (RWIE). For statistical analysis twins were divided into dominant and non dominant twin sets according to parental definition.

Pearson r correlations were calculated to test for similarities

within the twin pairs, between the identical and fraternal twins, and between parents and twins. T tests were used to calculate mean differences between the groups of twins and their parents. Statistical significance was selected at $p < .05$.

Results The intrapair correlation (r.11) for the 20 pairs of six-year old identical twins on the measure of locus of control (SPIES) was non significant, indicating that identical twins have different conceptions of their own ability to control their world. The intrapair correlation (r.67) on the measure of locus of control (SPIES) for the 20 pairs of six-year old fraternal twins was significant at .01, indicating that fraternal twins experienced or perceived their parents and environment to be more similar than identical twins, hence having similar conceptions of their own ability to control their environment (See Table I).

The correlations calculated for parents and identical twins on locus of control were non-significant. The only significant correlation (r.43) at the .05 level between mothers and twin set 1 (external) suggests that the mother relates differently to her identical twins and is also more influential then the father in determining internality-externality (See Table II).

The pearson r correlations calculated for parents and fraternal twins and then broken down into groups of mothers and fathers with twin set 1 and twin set 2 were all non significant on the measures on locus of control (See Table II).

The t ratio for locus of control between the identical and fraternal twins was 1.32, and was non-significant, suggesting that both identical and fraternal twins showed a similar internality. The t ratio between parents on locus of control was non significant,

indicating that parental influences between the groups were not great enough to influence the findings of the study as reported in Table II.

Discussion

The initial finding of the study, identical twins different internality-externality orientation is the most controversial. Although research on twins and locus of control has not been conducted, this finding is contradictory to a large body of research that indicates similarities in personality development in identical twins (Eysenck, 1967; Floderus-Myrhed et. al., 1980; & Torgensen & Kringlen, 1978). However, explanation for this finding can be derived from the literature and research on personality differences in twins, parenting twins, and the "twinning bond".

With regard to personality differences, Burlingham (1952) and Gromada (1981) have pointed out that the mother of identical twins must differentiate between her twins in order to relate to, and to identify with each twin. Differentiation between the twins is based on real differences between the pair (Lytton, 1980), or a combination of behavioral differences, environmental interactions, and conscious and unconscious maternal projections (Allen et al., 1976; Dibble & Cohen, 1981; & Gifford, Muraski, Brazelton & Young, 1966). The existence of differences between identical twins on a measure of locus of control indicates that several factors are contributing to internality-externality. Just exactly what these factors are is impossible to determine from this study. Speculatively, these differences began at birth and evolved through early childhood in order for parents to differentiate and related to their children. Further, this finding implies that a reciprocal relationship exists

between parents and twins in this study. Parents responded to or created differences between their identical twins, and these twins responded, likewise, to the treatment they received.

Farber (1981) has suggested that the twinship itself, the intrapsychic environment between twins, is what causes differences between twins. She suggested that identical twins make themselves artificially different as a result of contact with each other in order to individualize into separate and complete human beings. Perhaps then, the intra psychic environment is a determinant of the differences found in the internality-externality of the identical twins in this sample.

Another interpretation of this controversial finding is the existence of a "twinning bond" which may be strong enough to allow each twin to take on a different way of perceiving the world, while at the same time merging together as a "unit" to form a different and united "we-self" identity (Burlingham, 1952; Hift, 1981; & Leonard, 1961).

The second concern of this study was to look for similarities or differences between fraternal twins on a measure of locus of control. The findings indicate that fraternal twins perceived their ability to control their world in a similar manner. No reason for this finding can be found in previous studies; therefore, an explanation for this finding is speculative.

A possible explanation is that unlike mothers of identical twins, mothers of fraternal twins know their children are different, and, further, can readily see differences between them. As a consequence it is not as critical for these mothers to treat their children differently or to find differences between the children in order to

relate to and to identify with each one individually. Furthermore, fraternal twins are not subjected to the comparisons from outsiders about their twinship as frequently as identical twins (Hagedorn, 1974). Because they are not compared to each other as often as identical twins, fraternal twins probably experience their environment to be more similar than identical twins.

When the relationship between parents and identical twins on a measure of locus of control were analyzed, it was found that the mothers' internality-externality is a stronger influence on the determination of her childrens' locus of control than the father's locus of control. Further, this finding is provocative because it indicates that identical twins relate to their mother's tendency toward internality differently. Twin set 1, which was the more external group, showed a stronger correlation with the mother than twins set 2. Further, taking into account that identical twins do not have a significant correlation with one another on a score of locus of control, the results suggest that the identical twins in this study took on different aspects of the mother's internality-externality.

The relationship between locus of control in fraternal twins and their parents was then addressed. These findings indicate that twins form different relationships with their parents, and that they showed no significant relationships between parents, fathers and mothers, and their fraternal twins on a measure of locus of control. It is significant to note that a negative correlation was found between the fathers and the dominant twin. These findings contradict Lefcourt's research (1976) on the antecedents of locus of control.

Differences between the twin groups were not indicated for locus of control. The findings indicated that parental locus of control was

not the determinant of the similarities and differences between the twin groups, as mean differences were not significant.

Considering the research in its totality, the findings support a principal concern of the study by indicating the importance of the environment to the determination of social identity. That is, the findings suggest that internality is determined to a significant extent by psycho-dynamic interactions, including the environment. In addition the study suggests that a reciprocal relationship exists between the parents and children in this study. In other words, the child affected the adult's reaction to parenting.

Finally, the findings of the study contradict a large body of research which indicates greater similarities between identical twins as compared to fraternal twins due to similarity of genetic endowment between identical twins. However, the perusal of the twin literature, which is concerned with developmental differences between twins and idiosyncracies in twin development, supports the findings of the study. Further research is needed on the determinants of identity in identical and fraternal twins.

Table I

Pearson r Correlations Between Identical (MZ) and Fraternal (DZ) Twins and Their Parents on Measures of Locus of Control

Mothers = Reid-Ware Internal-External Scale (RWIE)

Fathers = Reid-Ware Internal-External Scale (RWIE)

MZ and DZ Twins = Stanford Pre-School Internality-Externality Scale (SPIES)

	MZ1	MZ2	DZ1	DZ2	MMZ	FMZ	MDZ	FDZ
MZ1		.11			.43*	.09	.01	-.13
MZ2	.11				.36	-.29	.08	.29
DZ1				.67**				
DZ2			.67**					

* < .05

** < .01

Table II

Comparison of the Means of Identical and Fraternal Twin Groups and Parent Groups on the Measure of Locus of Control

Group	Measure	test	Mean	sd	df	t
Identical twins	Locus of control	SPIES	7.2	1.9	78	
Fraternal twins	Locus of control	SPIES	7.8	2.3	78	1.32
Parents of identical twins	Locus of control	RWIE	19.3	4.5	34	
Parents of fraternal twins	Locus of control	RWIE	20.2	3.6	34	2.28*

* $p < .05$

REFERENCES

Allen, M., Greenspan, S., & Pollin, W. The effect of parental perception on early development in twins. Psychiatry, 1976, 39, 65-71.

Burlingham, D. Twins: A study of three pairs of identical twins. New York: International Universities Press, 1952.

Cohen, D., Allen, M., Pollin, W., Werner, M., & Dibble, E. Personality development in twins. Journal of American Academy of Child Psychiatry, 1972, 11, 625-644.

Cohen, D., Dibble, E., & Grave, J. Parental style in twin interaction. Archives of General Psychiatry, 1977, 34, 445-451.

Dibble, E. & Cohen, D. Personality development in identical twins: The first decade of life. Psychoanalytic Study of the Child, 1981, 36, 45-70.

Eysenck, H.J. The biological basis of personality. Springfield, Ill.: Charles C. Thomas, 1967.

Farber, S. Twins reared apart: A reanalysis. New York: Basic Books, 1981.

Flavell, J. H. The developmental psychology of Jean Piaget. Princeton: Van Nostrand, 1963.

Floderus-Myrhed, B., Pederson, N., & Rasmuson, I. Assesment of heritability for personality based on a short form of the Eysenck Personality Inventory, a study of 12,898 twin pairs. Behavioral Genetics, 1980, 10, 153-161.

Gifford, S., Muraski, B., Brazelton, B., & Young, G. Differences in individual development within a pair of identical twins. International Journal of Psychoanalysis, 1966, 47, 261-268.

Gromada, K. Maternal-infant attachment: The first step toward individualizing twins. Maternal Care Nursing Journal, 1981, 6, 129-134.

Hagedorn, J., & Kizziar, J. Gemini: The psychology and phenomena of tiwns. Anderson, S.C.; Drake House/Hallux, 1974.

Hift, K., An experimental study of the twinning reaction and ego development. Unpublished doctoral dissertation, Adelphi University, 1980.

Jensen, A.R. Hierarchial theories of mental ability. In B. Dockrell

(Ed.), On Intelligence. London: Mitchum, 1969.

Koch, H. Twin and twin relations Chicago: University Press, 1966

Leonard, M. Problems in identification and ego development in twins. In R. Eissler (Ed.), The Psychoanalytic Study of the Child, 16, London: Hogarth Press, 1961.

Lefcourt, H. M. Locus of control: Current trends in theory and research. New York: Lawrence Erlbaum, 1976.

Lytton, H. Parent-Child Interaction. New York; Plenum Press, 1980

Lytton, H., Conway, D., & Sauve, R. The impact of twinship on parent-child interaction. Journal of Personality and Social Psychology, 1977, 35, 98-107.

Lytton, H., Martin, N., & Evaes, L. Environmental and genetical causes of variation in ethological aspects of behavior in 2 year-old boys. Social Biology, 1977, 24, 200-211.

Mittler, P. The study of twins. London: Penguin Books, Inc., 1971.

Newman, H., Freeman, F.N., & Holzinger, K.J. Twins: A study of heredity and environment. Chicago: University of Chicago Press, 1937.

Phares, J. Dimentsions of personality. New York: Wiley, 1978.

Piaget, J. The moral judgment of the child. London: Kegan Paul, 1932.

Robinson, J., & Shaver, P. Measures of social psychology. Ann Arbor; Michigan Institute for Social Research, 1973.

Tabor, J., & Joseph, E. The simultaneous analysis of a pair of identical twins and the twinning reaction. The Pschoanalytic Study of the Child. In R. Eissler (Ed). Vol. 16, London: Hogarth Press, 1961.

Torgensen, M., & Kringlen, E., Genetic aspects of temperamental differences in infants. Journal of the American Academy of Child Psychiatry, 1978, 17, 433-444.

Wilson, R. Synchronies in mental development: An epigenetic perspective. Science, 1978, 202, 939-947.

Wilson, R, & Harring, E. Twins and siblings concordance for school-age mental development. Child Development, 1977, 48, 211-216.

Zazzo, R. Les Jumeaux, le Couple et la Personne. Paris: Presses Universitaires de France, 1060.